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NEWS LETTER

BUREAU OF PLANT QUARANTINE

UNITED STATES DEPARTMENT OF AGRICULTURE

Number 43 (NOT FOR PUBLICATION) June 30, 1934.

(The contents of this number, unless specifically stated otherwise, cover the month of May only)

TECHNOLOGICAL DIVISION

The work on analyses of soil plots for lead arsenate in plots of growing plants was completed the latter part of May by G. A. Russell. In this work soil from 701 plots of growing plants, plunging frames, and heeling-in areas from 18 nurseries in Pennsylvania and New Jersey was analyzed. Of these plots, 251 required treatment with lead arsenate to bring them up to 1,500 pounds in the first 3 acre-inches. The total area of the plots from which the analyses were made was 4,948,884 square feet, of which 1,726,608 square feet required additional lead arsenate to bring it up to the required concentration in the first 3 acre-inches. In all, 12,864 pounds of lead arsenate would be required to bring the entire 701 plots up to the required concentration of lead arsenate.

The car fumigation house recently constructed at Brownsville, Tex., was finished the early part of this month. This is a three-car fumigation house built of brick with concrete foundation, equipped with steel sliding doors and with ample storage space. The entire house cost approximately 18 cents a cubic foot. With the completion of this house, only 1 project of the 24 Public Works projects is left uncompleted on the Mexican border. This is the installation of the new outside doors at the El Paso car fumigation house. The reason for the delay in this project is that the original contractor was unable to proceed with the work and it was necessary to give the job to one of the other bidders, the work being held up about 4 months meanwhile. The improvements add considerably to the appearance and effectiveness of the houses. J. M. Luckie has had general supervision of the work.

A. C. Johnson, of Alpine, Tex., has just recently reported on a method for the fumigation of cotton at atmospheric pressure. He was able to get a complete kill of all pink bollworm in cottonseed at a depth of 3 inches in the bale with a concentration of 3 ounces of hydrocyanic acid per 100 cubic feet, including the space occupied by the bale. This concentration of gas was lethal to all pink bollworm larvae at this depth when the temperatures were 50° F. or above.

FOREIGN PLANT QUARANTINES

RECENT ENTOMOLOGICAL INTERCEPTIONS OF INTEREST

Mediterranean fruit fly in loquats.--Three living larvae of *Ceratitis capitata* Wied. were intercepted at Providence, R.I., in two loquats (*Eriobotrya japonica*) in baggage from the Azores.

Leopard moth from Italy.--A living larva of *Zeuzera pyrina* L. (Cossidae) was intercepted at New York in the stem of *Forsythia* sp. in baggage from Italy. This insect, which has been called the horsechestnut borer, was introduced into North America sometime prior to 1879.

Scale insect from Japan.--*Pseudaonidia paeoniae* (Ckll.) (Coccidae) was intercepted at San Francisco on twigs of *Camellia* sp. in ship's quarters from Japan.

An ambrosia beetle in orchid stem.--*Xyleborus morigerus* Blandf. (Scolytidae) was intercepted at Honolulu, Hawaii, in a stem of *Dendrobium phalaenopsis schroederianum* (orchid) in the mail from Australia.

Homoptera in Puerto Rico.--Living specimens of *Colpoptera maculifrons* Muir (Fulgoridae) and *Nessorhinus gibberulus* Stal (Membracidae) were collected on twigs of pomarrosa (*Eugenia jambos*) in the field at Arecibo, P.R.

Hemipteron from Guatemala.--A living specimen of *Anasa andresi* Guer. (Coreidae) was taken at Charleston, S.C., on banana debris in cargo from Guatemala.

A spider beetle from Lithuania.--*Ptinus subpilosus* Sturm (Ptinidae) was intercepted at Washington, D.C., with hairy vetch seed in cargo from Lithuania.

A darkling beetle from Australia.--A living adult of *Platydema tetraspilota* Hope (Tenebrionidae) was intercepted at Baltimore in a maple log in cargo from Australia.

Beetle in green corn.--A living adult of *Colopterus denticulatus* Sharp (Nitidulidae) was intercepted at New Orleans in an ear of green corn in stores from British Honduras.

Scale insect on croton.--*Pseudaonidia clavigera* Ckll. (Coccidae) was intercepted at San Francisco on croton (*Codiaeum* sp.) cuttings in baggage from Hawaii.

Scale insect from Australia.--*Chrysomphalus rossi* (Mask.) (Coccidae) was intercepted at Honolulu, Hawaii, on a stem of *Strelitzia reginae* in crew's baggage from Australia.

Beetle with banana debris.--A living adult of *Epilachna borealis* var. *distincta* Ws. (Coccinellidae) was taken at Philadelphia with banana debris in cargo from Mexico. This variety is not recorded from the continental United States.

Turnip gall weevil in cauliflower.--A living larva of Ceutorhynchus pleurostigma Marsh (Curculionidae) was intercepted at Mobile, Ala., in cauliflower in stores from Belgium. The larva, which had made a small tunnel, was feeding in the stem.

Dura stem borer from Italy.--Pupae of Sesamia cretica Led. (Noctuidae) were intercepted at New York in broomcorn in baggage from Italy. This insect, which is not recorded from the United States, is a pest of sugarcane, corn, and dura (sorghum) in Khartum, Anglo-Egyptian Sudan.

RECENT PATHOLOGICAL INTERCEPTIONS OF INTEREST

Rust of sudan grass.--Our first interception of Puccinia purpurea was made at New Orleans on sudan grass from Cuba. The rust was badly parasitized by Darluca filum.

Lemon foliage diseased.--Phyllosticta sp. was found on diseased lemon leaves from Italy intercepted at Baltimore. The only previous interceptions of this disease were from Italy in 1925 and Morocco in 1932.

Oleander disease.--Septoria sp. was found spotting oleander leaves from Italy intercepted at New York. The only previous interceptions of a Septoria on this host were from Bermuda.

Tomato disease.--Some badly spotted tomatoes from Mexico were intercepted on April 21 at Mobile. Mr. Stevenson reports that the fungus on these spots, Helminthosporium sp., does not fit the description of H. tomato but does not fit any other species either.

Green smut of rice.--Ustilaginoidea virens was intercepted at Seattle in rice from the Philippine Islands. The only previous interceptions of the disease were made in 1921 from China and 1923 from Japan.

Azalea leaf disease.--Azalea plants from England intercepted in baggage at New York were found to be badly disfigured by Exobasidium vaccinii, our second interception of the disease on azaleas from England.

Corn rust.--Our first interception of Puccinia sorghi was made at Philadelphia on corn fodder from Azores.

Potato disease.--Stysanus stemonites was found on diseased potatoes from Brazil at New Orleans, our first interception of the fungus from Brazil.

Gossypium rust.--Our first interception of Cerotelium desmium was made at the Washington inspection house on Gossypium from the West Indies.

Nematodes in sweetpotatoes.--Our first interception of Aphelenchoides parietinus in sweetpotato was made at New York in material from Japan.

Nematodes in potatoes.--Our first interception of Anguillulina dipsaci from Morocco was made at Baltimore in potatoes.

ORCHID FUNGI UNUSUALLY ABUNDANT

Interceptions of orchid rusts have been remarkably numerous this season as compared to former years. In addition to the rust *Uredo epidendri* P. Henn., reported in the April number of the News Letter, the following interceptions have been made at Washington, D.C.:

Uredo nigropunctata P. Henn. on the leaves of *Stanhopea oculata* from Costa Rica.

Uredo sp. on *Epidendrum* sp. from Colombia.

Uredo sp. on *Oncidium* sp. from Dutch Guiana.

Uredo sp. on *Odontoglossum* sp. from Colombia. This seems to be the first report of a rust on this host.

The frequency of these interceptions raises a question as to whether this sudden increase in interceptions is merely a coincidence or whether these rusts have been unusually abundant in Central and South America in 1934.

A leaf spot due to *Selenophoma* sp. was found May 28 on a plant of *Dendrobium ashworthiae* from England at Washington, D.C. The leaves of the plant were seriously disfigured, and in some instances dead. This fungus was collected on *Dendrobium* once previously by one of our inspectors in a greenhouse at New Rochelle, N.Y. It appears to be an undescribed species.

KEEN INSPECTION WORK ON MEXICAN BORDER

(Reported June 5, 1934, by T. A. Arnold, Inspector in Charge, El Paso, Tex.)

Recently three interceptions, apparently of Mexican fruit fly larvae, have been made at the Santa Fe Street bridge by inspectors Harvison, Miller, and Alexander.

On April 30, W. A. Harvison, on duty at the Santa Fe Street bridge, noticed that one of the Mexican men, whose vegetables he was inspecting, seemed quite nervous. Asked if he had any fruits the Mexican declared that he had none. On account of the actions of this man the inspector was not satisfied, and upon examination of the man's clothing found one mango concealed in his hip pocket. As the Mexican still seemed nervous, he was taken into the inspection room and searched, but nothing more was found. Mr. Harvison remarked to one of the customs inspectors that the Mexican undoubtedly had something more concealed as he was so nervous. It then occurred to our inspector that he had not looked under the man's hat; upon doing so two more mangoes were found, one of which yielded seven fruit-fly larvae.

On May 27, V. O. Miller was inspecting at the Santa Fe Street bridge a street car coming from Mexico. During his inspection he was informed by the street car conductor that two Mexican women on the car had been eating mangoes. The inspector found one mango seed behind the seat where one of the women was sitting, but could find nothing else. As he was leaving the street car he glanced across the bridge and noticed another mango seed and a large piece of peeling, which no doubt the Mexican woman had thrown from the car as it was crossing the bridge. He immediately picked up this material and in the small portion of pulp which was adhering to the peel he found two live fruit-fly larvae.

On May 30, R. A. Alexander found one fruit-fly larva in a small amount of pulp adhering to some mango peel, which was found in the possession of a Mexican girl coming from Juarez, Mexico, on the street car.

These incidents show that it pays an inspector to be observant at all times and indicates the necessity for thorough inspection. These inspectors have been commended for their alertness.

FURTHER INFORMATION ON THE BAGWORM FOUND IN BANANA SHIPMENTS

(Contributed by Clyde B. Trotter, Associate Plant Quarantine Inspector, Galveston, Tex., June 8, 1934)

Observations at this port on the new bagworm described in the last issue of our News Letter indicate that it is brought aboard ship in bunches of bananas which are stored in the ship's hold for shipment to the States. Probably due to the heating of bananas in bulk or some chemical change taking place in the pile of bananas in the ship's hold, or because of their natural inclination to wander, these small larvae work their way up out of the banana pile and are most frequently found suspended from the roof or top of the hold above the pile of bananas.

It is quite possible that their preferred host plant is something other than the banana. It may be some plant growing in the banana groves, and the larvae in their wanderings attach themselves to the bunches and are taken aboard ship.

A LAW-ABIDING CITIZEN SPEAKS

The following letter creditably reflects the reaction of an intelligent citizen towards a quarantine enforcement situation in which he became involved because his brother tried to bring plants for him from abroad apparently knowing nothing about the plant quarantine restrictions. This letter, addressed to W. H. Freeman, Plant Quarantine Inspector in Charge, at New York, was in response to a notification from Washington that the plants in question were being held, and that he could make the customary arrangement for their importation if he so wished:

"I received a letter from the Bureau of Plant Quarantine from Washington, advising me to get in touch with you regarding 5 Oleander plants, which my brother had with him May 24, SS. Rex.

"I think the only thing to do in the matter is to chuck such plants away, as it would be too much trouble for you to ship them to Washington, and to me to try to collect them.

"I have no words to thank the officer in charge at the pier for his exquisite kindness in the matter, and for the solicitude of the Washington office. As much as I would like to have such plants, as they were sent to me by my mother, I realize that the law must be obeyed, and I am the first one to admit the necessity of such laws.

"Thanking you for the trouble I am giving you, with best regards, I am, sincerely yours,"

IMPORTED POCKETBOOKS BULGE, BUT NOT WITH MONEY

Three hundred pocketbooks from Japan offered for entry at Portland, Oreg., May 8, were found to exhibit a well filled and prosperous bulging quite unusual for these times. Their bloated condition was not due to money, however, but to cotton picker waste, inserted by the manufacturer presumably to accustom them to the permanent condition of distention wallets are supposed to maintain in this country. The cotton stuffing amounted to about 4 pounds, and being prohibited entry, was removed by the inspector and burned. Having thus reduced these containers to the flabby state now most popular here, the shipment was released.

INSECT SHOWS TASTE FOR ART

Sleuths of the foreign plant quarantine service are constantly picking up various insects caught in the act of trying to enter this country from abroad. They endeavor to slip in in all sorts of odd ways, but who would think of looking for such immigrants in an oil painting? Yet certain European insects recently encountered had apparently developed a quite marked taste for art. At least they were busily at work tunneling in the block of wood on which an ancient masterpiece was painted when they were discovered by an alert customs inspector at the Washington, D.C., postoffice. The venerable painting with its mischievous insect colony was promptly turned over to the Plant Inspection House; here it was given effective fumigation treatment and sent on its way freed from the burrowing family. Insect experts in the Bureau of Entomology report that the insect concerned is a species of Nicobium differing somewhat in form from the type occurring in this country.

IMPROVED FACILITIES AT SEATTLE

An inspection room for the use of the Bureau at Seattle has been screened off in the corner of the large Appraiser's store room in the New Federal Office Building. It is approximately 12 by 14 feet, screened with cooper screening to the ceiling, and has windows on two sides, thus insuring plenty of light. Here all plant material imported under Quarantine No. 37 that requires a detailed inspection will be handled. Material found infested or infected, which requires a treatment of some sort, will be transferred to the Spokane Street quarters where a vacuum fumigation plant is already available. From plans now drawn it is hoped to set up a small hot-water-treatment plant there in the near future.

FRUIT SMUGGLER FINED

A report from Hidalgo, Tex., notes that a resident of McAllen, Tex., was apprehended April 18 in the act of smuggling 11 mangoes from Mexico into the United

States concealed under the seat of his automobile. For this offense a fine of $5 was imposed on him through action by customs. Two fruit fly larvae taken from the confiscated mangoes by the plant quarantine inspector have subsequently been identified as _Anastrepha ludens._

THE FLEET COMES TO NEW YORK

The recent arrival of the combined Naval squadrons at New York has excited wide interest in its national, social, and personal aspects, but this event had also a plant-quarantine angle quite unknown to the public. Inasmuch as the fruits and vegetables carried from foreign lands in the food stores of these war vessels are just as likely to bring unwelcome insects and diseases to our shores as any peaceful liner or tramp steamer, it is desirable that the plant quarantine inspector should give these stores the same careful scrutiny to which the stores of ordinary vessels are subjected. W. H. Freeman, Plant Quarantine Inspector in Charge at New York, thus reports on this examination, noting the whole-hearted attitude of the Navy officials in taking no chances with foreign fruits and vegetables:

"The Headquarters of the Third Naval District furnished this office in advance a list of the 92 naval vessels expected to arrive, together with a list of the docks and the berths at which the ships would be stationed. They also advised us that a radiogram had been sent to all commanders ordering the destruction of all fresh fruit and vegetable stores of foreign origin previous to the arrival of the vessels in territorial waters.

"Of the 92 ships expected from foreign ports, three arrived and were boarded on May 29, and 82 arrived during the evening of May 31 which, with one exception, were boarded by our inspectors on the morning of June 1. Practically all boarding and inspection was completed by 9 a.m.

"The ship that was not boarded went to Yonkers and, in the press of routine work, it was not reached. The other 7 vessels are accounted for as follows: U.S.S. _Simpson_ went to Philadelphia, U.S.S. _Bridge_ to Norfolk, U.S.S. _Childs_ to Washington, and U.S.S. _McFarland_ to Charleston.

"The U.S.S. _Overton_, _Sturtevant_, and _Fairfax_ are regularly stationed at New York and merely escorted the fleet up the bay."

DOMESTIC PLANT QUARANTINES

The terminal inspection of parcel-post shipments of nursery stock was discontinued in Arkansas at the beginning of the spring shipping season. Other States which have discontinued the system during recent years are Georgia, Idaho, and Wyoming, while Puerto Rico instituted the system in June of last year.

TRANSIT INSPECTION

About 400 packages of woody plants with roots consigned by a New York shipper without State nursery inspection certificates attached, were seen on May 10 by transit inspectors at Chicago, who reported the shipments to the Washington office. The Post Office Department was notified, in the customary manner, of this apparent infringement of the postal regulation which requires a State certificate in shipping nursery stock by parcel post.

More shipments were inspected at the various transit inspection points during the last half of April, and more violations found during the first half of May, than in any other 15-day period of the season. There were 135,244 shipments and 153 violations in the periods named.

Of interest in connection with this season's inspections at Indianapolis, Cleveland, and Detroit, where shipments have seldom been checked in recent years, was the interception of 17 apparently uncertified shipments moving from the Japanese beetle regulated area principally to the States of Indiana, Michigan, and Ohio, of which 10 were intercepted at Indianapolis, 4 at Cleveland, and 3 at Detroit.

The cultivated black currant is seldom found in commercial shipments of recent years, owing to action on the part of several States in outlawing the species, and eradicating it over large areas. Two such shipments were intercepted by California State inspectors during the spring season, however, and prompt action was taken to destroy the one and turn back the other.

Nearly 2,000 specimens a year, each tagged as to the shipment involved, are received at the Washington office, representing apparent violations of Federal domestic plant quarantines. A twig of hemlock, a sprig of climbing bittersweet, an envelope of soil, a bulb, a "plant with roots," an ear of corn, a peach, a rose stem, a piece of bark, and a currant with leaves, are examples of the assortment likely to arrive in the daily mail from transit inspection points during the busy season. To keep the accumulation of fresh material in systematic order until each case is investigated by the field office and closed, has been found to involve considerable detailed handling. Accordingly, a modification of the procedure to reduce the number of specimens is under consideration. Specimen taking originated in the early days of transit inspection for white-pine blister rust quarantine violations, and the small twig of Ribes or pine, detached in the presence of witnesses, served as important evidence of violation. The practice later became general as to other quarantines. The specimen is still important in the case of Ribes, pines, Mahonias, barberries, and Narcissus bulbs. In the case of a quarantine such as the Japanese beetle, however, which covers various kinds of nursery stock, there is less need for determination of species, and it is seldom that the specimen is called for to settle a controversy with the shipper. The sampling practice may therefore possibly be discontinued as to certain quarantines.

Instructions to inspectors with reference to intercepting shipments bearing Japanese beetle certificates which have expired, when the expiration date falls on Sunday or a holiday, were issued to inspectors in circular 46-T dated May 15.

Transit inspection was discontinued at Saint Paul about the end of May. At New York the force has been decreased through the temporary discontinuance of the assistance of two State inspectors. At Philadelphia one man is handling the work, the two Japanese beetle inspectors who have been helping to check shipments there during the nursery-stock shipping season having been assigned to other duties.

WHITE-PINE BLISTER RUST

Quarantine zones surrounding the Forest Service nursery at Parsons, W.Va., were established by the West Virginia State Commissioner of Agriculture in an amendment to Quarantine Order No. 5, dated June 15, which prohibits the growing or possession of currant and gooseberry plants in such zones. White pines are being grown in this nursery for use in reforesting the Monongahela and other national forests in this region, and the spring inspection for Ribes in the environs was recently completed by this Bureau. Trained blister rust inspectors supervised the eradication work of the crew, and the acrobatic stunts necessary to reach and uproot bushes clinging to precipices in the vicinity of the nursery resulted in accidents to two of the crew, one of whom was a C.C.C. member.

The inspection of Ribes in the environs of other nurseries applying for pine-shipping permits has been completed, since the beginning of the season, in 1 nursery in New York, 6 in New England, 1 in New Jersey, 2 in Maryland, and 3 each in Pennsylvania and Ohio. The work is under way in Wisconsin, Michigan, Minnesota, and Iowa. It is found that early spring is the best time to sight the Ribes since the leaves appear in advance of other vegetation, making it comparatively easy to locate sprouts and seedlings which may come up after the previous year's eradication.

Forest Service nurseries in Minnesota, Wisconsin, and Michigan are preparing to produce some 18 million white pines a year, and especially intensive efforts are being made to see that the nursery plots concerned are fully protected against blister rust infection. Some of them are located in areas where native Ribes are naturally abundant, and it is found necessary for the crew to cover the ground several times in order to find and destroy the small seedling and sprouting Ribes plants.

There is an increased demand for white pine stock in the Northeast, according to a New England nurseryman. The increase is believed to be due in part to the decrease in red pine planting, owing to infestations by the European pine-shoot moth, and in part to the extensive reforestation activities.

A reprint is being made of Farmers Bulletin 1398, "Currants and Gooseberries, Their Culture and Relation to White Pine Blister Rust," and the summary of State laws relating to blister rust control is being checked with officers of the various States to determine whether it is up to date.

DATE SCALE ERADICATION

During the month of May a careful inspection was made of Block I in the Reed Garden in the Imperial Valley. Two dead scales were found on a leaf stub of a previously infested and treated palm. This property is the only one in which Parlatoria scale has been found in the past year.

Offshoot cutting is now in progress and will continue during June and July. While Federal permits are required for interstate shipments only, the States of California and Arizona require permits for any movement of offshoots. Inspections are made therefore of all offshoots cut.

The regular routine inspection which was carried on over the entire date-growing area in the past has been discontinued, and only certain areas and properties which are still under suspicion are being watched. Clean-up work and intensive scouting has been discontinued until cooler weather in the fall. There are a few remaining seedling jungles which will be cleaned out then, and a number of previously infested palms which will be trunk pruned to locate incipient infestations if any.

JAPANESE BEETLE, MOTHS, AND EUROPEAN CORN BORER

Japanese Beetle Activities

Owing to a reduction in the Japanese beetle appropriation, trapping this coming summer will be limited to only a few points concerning which special information is desired. The trapping schedule is not yet complete but will probably involve only two or three middle western cities and the most important distribution centers in States contiguous to infested territory. Among the points to be trapped will be St. Louis, where, according to the State Plant Officer, two boy scouts report that they picked up several Japanese beetles in 1932 and again in 1933. The work in St. Louis will be carried out in cooperation with the Missouri State Department of Agriculture. The Bureau does not feel that the reports by the boys necessarily represent an established infestation at St. Louis, but in case the presence of beetles there is confirmed by the traps, both the State and the Federal departments of agriculture wish to be ready to employ such suppressive measures as may be needed. A number of nonregulated States have also made particularly pressing requests that the trapping program be continued in order that when any specimens of the insect arrive in their States they may be discovered immediately and suppressive action taken if needed.

In New Jersey 918,528 plants were certified for shipment to points outside the regulated zone. This was an increase of 70 percent over the plants certified during May 1933 and an increase of almost 30 percent over the quantity certified during April of this year. Individual inspection calls were slightly greater than during April. The late spring and the large amount of last-minute shipping evidently accounted for the increased volume of inspections of May over April. The increase of 70 percent in quantity of plants certified over the same month of last year, however, significantly indicates a decided improvement in conditions in the trade. This is further borne out by statements of nurserymen expressing their satisfaction in the upward trend of business. Carload shipments of sand from New Jersey pits remained practically the same as last year. Sand for construction purposes is exempt from the certification requirements, so is not dealt with under the quarantine. Shipments of vegetable plants from southern New Jersey increased to such an extent that it was necessary to transfer an additional inspector to the Glassboro office to fill the demands for this type of inspection. Certification of dahlia tubers slackened somewhat during the month but continued stronger than usual at this advanced season. All remaining lead-arsenate-treated heeling-in areas were sampled and the representative samples turned over to the Technological Division for analysis. Prolonging of the nursery stock shipping season resulted in many of the nurseries postponing their lead arsenate applications, which must be completed by July 1 in nursery plots and by August 1 in coldframes and heeling-in areas. One South Jersey nursery applied arsenate of lead to a new plot containing 2.7 acres. The trapping program of last year by the New Jersey Department of Agriculture in Sussex County, the northwesternmost county in the State, will be repeated this year. With 700 traps placed as nearly as possible in the exact locations they occupied last year, the trap captures will afford an accurate comparison of the successive years' populations. Trap tenders will set up their own routes about the second week in June.

Proceedings were instituted on May 29 before United States Commissioner Clarence J. Crossland, of Zanesville, Ohio, against Ray Brennan of 902 Blue Avenue, Zanesville. On the evening of May 13 the defendant stopped for inspection at the road patrol station on the Pennsylvania-West Virginia State line near West Alexander, Pa. In response to the routine quarantine inquiries Mr. Brennan stated that he was not transporting any plant material. The inspector flashed his light in the rear of the car and observed a quantity of plants with soil. According to the inspector's report, when the driver was informed of the quarantine and the inspector offered to remove the plants from the car, free them from soil and certify them, the driver became abusive and threatened to stab the inspector. A second inspector at the post was also threatened and roundly cursed. After considerable argument and swearing, the driver refused to have his plants inspected and departed with them still in his car. The license number of the automobile was the only identification that could be obtained. This was traced and on May 28 Mr. Brennan was interviewed at his home. He admitted that the plants had been brought to Zanesville and exhibited them to the investigating officer. On the following day a complaint was filed before United States Commissioner Crossland, and on June 1 the defendant was arrested by a deputy marshal from Columbus. When arraigned on the complaint Mr. Brennan pleaded not guilty and demanded a hearing. Bond in the sum of $500 was furnished pending the preliminary hearing. Subsequently the defendant agreed to be bound over for further court action without the preliminary hearing.

Analyses of soil samples from 413 nursery plots, 271 coldframes, and 17 heeling-in areas were completed by the Technological Division during May. These 701 treated units are scattered throughout 18 nurseries in New Jersey and Pennsylvania. The nursery area from which the soil samples were collected aggregates 113.6 acres. Of this acreage, 39.6 acres will require the addition of varying amounts of lead arsenate to bring the concentration up to the required dosage of 1,500 pounds of the poison in the upper 3 inches of surface soil throughout the areas. Totals of 217 nursery plots, 227 frames, and 6 heeling-in plots were found to contain lead arsenate equaling or exceeding the required amount. Renewal of the 1,500 pounds per acre lead arsenate concentration in nursery plots containing growing plants must be accomplished before July 1. Plants in nursery plots retreated with the prescribed quantities of lead arsenate may be certified after September 20. Plants in plots receiving their initial treatment prior to July 1 are eligible for certification after October 1. Similar treatments of coldframes and heeling-in areas must be completed by August 1. Bare soil so treated by the prescribed date acquires a certified status on the following October 1, after which material may be planted, heeled-in, or plunged in the plots, coldframes, or other areas. Information concerning the results of the analyses was communicated to the nurseries involved as soon as the data were supplied by the Technological Division.

Reviewing the various modes of modern transportation which assist in the artificial spread of plant pests, R. H. Bell, director, bureau of plant industry, Pennsylvania Department of Agriculture, in a recent official release, cites the fact that all countries in which horticulture has reached an advanced stage recognize the menace of various pests and maintain restrictive measures against them. After emphasizing the fact that at least 50 percent of the one hundred most destructive insect and disease pests in this country can be traced to foreign lands, and showing how modern transportation aids in the quick spread of plant pests, Mr. Bell states, "These are fundamental reasons why we find every State in the Union, in fact every civilized country in the world, paying more attention to ways and means of preventing or offsetting this advantage given to pests by our modern methods of transportation. Take the Japanese beetle and gypsy moth for example: While restrictive measures have not entirely prevented them from spreading, their progress has been decidedly checked, and holding them within a limited area has facilitated establishment of parasites and given time for the development of control measures."

County agricultural agents in southern New Jersey, in recently published articles concerning 1934 corn planting dates, have reemphasized the fact that this year's date for corn planting will have to be altered from the customary dates of years previous to heavy Japanese beetle infestation. For several years past the Japanese beetle has been responsible for serious injury to the early planted corn crop in South Jersey. Late planting, this year in early June, is suggested as a means of bringing the ears in silk after the peak of the adult beetle flight. Somerset Leaming and Lancaster Sure Crop are suggested as corn varieties with short growing seasons. These varieties may be planted late and still mature a crop before the early frosts. Conversely, early planting of soybeans is being recommended. From May 5 to 10 was set as a proper seeding season to mature the crop just prior to the heavy Japanese beetle flight, which usually begins about the first week in July. Later maturing crops of soybeans in heavily infested sections encounter heavy feeding by the beetle.

Replacements of winter-killed stock have stimulated the nursery trade.

Several rose growers in eastern Pennsylvania early exhausted their stored supply of dormant roses and were obliged to postpone filling the late orders until mid-May when potted plants from their certified greenhouses made salable size. Florists and greenhousemen throughout the area rather generally reported a good Mother's Day and Memorial Day business. The volume of sales was evidently more than that of last year. In some sections the prices received resulted in only a slight increase over last year's gross receipts. However, optimism concerning future business seems to prevail among the nursery and greenhouse operators. Seed houses and dahlia growers in Philadelphia and vicinity sold out completely on dahlias, lillies, and gladiolus. It was necessary for them to cancel many orders, since they were unable to obtain additional stock. A Philadelphia nurseryman stated that this is the best year he has had since 1929.

Japanese beetle map posters were received in Harrisburg on May 14. Their distribution began immediately to classified dealers, establishments occasionally shipping under certification, agents of common carriers, and postmasters throughout the entire regulated areas. A supply of 3,500 maps was forwarded to the mailing division, traffic department of the Railway Express Agency, for distribution to agents of this common carrier. Distribution of 500 maps to the agents of the Southeastern Express Company was effected through the company's traffic department in Atlanta, Ga. This year's map is of the same general type as that sent out in 1933, being 12 by 20 inches in size and printed on yellow cardboard, which is easily rolled for mailing in a 2-inch mailing tube. Omission of the township designations in the counties shown on the map considerably increases the legibility of the heavy black lines used to designate the areas under regulation.

Certification records disclose that numerous class I establishments throughout the area have failed for one or more seasons to ship quarantined material to nonregulated points. Letters were dispatched to these inactive classified establishments inquiring whether they still desired to maintain their classified status. Each class I establishment must be scouted during the adult flight of the beetle. It is quite necessary under the restricted scouting program that all unnecessary scouting be eliminated so that more time may be devoted to scouting the premises of regular shippers whose products move to all parts of the country. Responses have been received from over 60 establishments stating that they no longer require classification under the regulations, since their shipments are now confined to the regulated zones.

Contained in the soil removed from uncertified plant material intercepted and examined at the road posts during May were 15 Japanese beetle grubs. Five of these larvae were taken from 6 small pine trees en route from Asbury Park, N.J., to Detroit, Mich. An azalea plant being transported from Philadelphia to Memphis, Tenn., yielded 3 grubs. Two grubs were found in soil accompanying a clump of lillies being transported by a Philadelphia motorist to Warsaw, Ind. An infestation of 2 grubs was also disclosed in 2 pine trees being carried from Trenton, N.J., to McLeansboro, Ill. Other infested shipments were destined to Catlett, Va., Middletown, Ohio, and Crookston, Minn.

Cultures of the nematode Neoaplectana glaseri were applied on the night of May 1 to a field in the heavily infested section of South Jersey near Elmer.

Rearing of the nematodes was accomplished in the State field laboratory at White Horse. Suspended in water, the nematodes were distributed in the field by means of a 300-gallon sprayer. Water for the operations was hauled in a 1,000-gallon tank truck. Application of the parasites was under the direction of E. G. Rex, in charge of the Japanese beetle suppression project of the New Jersey Department of Agriculture. Grub diggings will later be made to determine mortality of Japanese beetle larvae in the parasitized area.

Contact visits to fruit growers to inform them concerning the seasonal quarantine on fruits and vegetables effective June 15, developed considerable information concerning prospects for this year's fruit crop in southeastern Pennsylvania. A fair crop of sour cherries is expected, but all fruit buds of sweet cherries were winter-killed. The subzero temperatures destroyed the peach buds in most orchards, although a few will have from a fair to good crop. Apple production will vary as to variety, some few varieties having been frozen out. Generally apples do not appear to have suffered any serious damage. Pears are also expected to mature a fair to good crop.

Practically all of the mechanical bean inspecting machines have been overhauled in anticipation of volume inspection of beans this year. Last summer a midwestern drought and the large influx of visitors to the Century of Progress exposition occasioned carload movement of large quantities of lima and snap beans from southern New Jersey and eastern Pennsylvania to Chicago and other midwestern markets. It appears now that somewhat similar conditions will exist this summer. Preparations are therefore being made for inspections of large quantities of beans. Approximately 9,900 beetles were removed from the beans run through the "debeetlers" last summer.

All chemical equipment and reagents in the chemical laboratory of the Technological Division at the New Jersey distirct headquarters at White Horse were transferred on May 31 to the Japanese beetle research laboratory at Moorestown, N.J. A large lathe used by the division was shipped to a Texas field station. The White Horse laboratory is now completely dismantled. It has been thoroughly cleaned and is now ready for repainting preparatory to its use by the State of New Jersey for the rearing of nematodes to be distributed in connection with the State's control campaign. All buildings at the White Horse headquarters were erected by the State.

Greenhousemen in eastern Pennsylvania report that the dust storms from the Middle West on May 11 and 12 left very noticeable dust deposits on foliage and blooms in their ranges. The dust covering was also very evident on the glass of the greenhouses. Accounts from different sections of the East indicate that the so-called "black-blizzards" befogged much of the northern Atlantic seaboard. The May dust storms are said to have been the greatest in intensity and most extensive in area covered in the past 20 years. At Harrisburg the air-borne dust particles were particularly noticeable at sundown in the form of a reddish haze above the surrounding hills.

Tent caterpillars and cankerworms are proving unusually destructive this year in the Eastern States. Many inquiries are being received from home owners whose trees are attacked. A recently published appeal by Governor Gifford Pinchot calls upon farmers, home owners, Boy Scouts, and others capable of assisting in eradication.

to destroy the tents of the destructive caterpillars which are now rapidly defoliating many trees in Pennsylvania. Inspectors in the gypsy moth infested zone report similar conditions in the New England States.

Throughout the regulated territory, visits have been made to all class III greenhouses to inspect the screening of the ventilators and doors. In Maryland, Delaware, and other South Atlantic States in the regulated zone all ventilators, doors, and other openings in greenhouses or coldframes must be kept satisfactorily screened during the period of flight of the adult beetle between June 1 and October 1, inclusive. In the States north of Maryland a similar beetle-proof condition of the enclosures is required between June 15 and October 15, inclusive.

One large North Jersey grower is coöperating with this Bureau and the Bureau of Entomology in tests designed to develop some easier and more satisfactory means whereby plants may be certified without freeing them from soil. This grower anticipates another good season next year and in preparing for the expected trade will attempt to grow some of his major lines of stock in plots treated with arsenate of lead. In this way he will determine whether or not his plants may be grown without harm in poisoned soil and thus made eligible for certification.

This year's first-record field find of an adult beetle was made on May 28, when a single specimen was taken from a mock orange located 40 feet from a residence at Holmes, Pa. It is in this general locality that beetles usually emerge earlier than in many other sections of the densely infested section in Philadelphia and environs. In 1932 the first beetles were collected at the same point on May 2. Last year they were first observed on May 15.

An outside frame house, 200 feet long, 30 feet wide, and 6 feet high, has been rescreened with galvanized wire at a large nursery near Philadelphia. This beetle-proof enclosure is used for growing hydrangeas, which cannot satisfactorily be grown in lead arsenate poisoned soil. A sprinkler system for watering the growing plants is being installed in connection with renewal of the wire screening.

One of the employees of the District of Columbia suboffice assisted Dr. J. L. King, of the Japanese Beetle Research Laboratory at Moorestown, N.J., in liberating 100 Tiphia wasp parasites of the beetle. The parasites were liberated in the Congressional Cemetery, one of the most heavily infested sections in the District.

More nurserymen have been licensed in Pennsylvania so far this year than during all of 1933, according to a preliminary report from the nursery inspection division of the Pennsylvania State bureau of plant industry. This established a new high record in both number of nurseries licensed and in acreage growing nursery plants for sale.

Pending the filling of the vacancy caused by the resignation of G. K. Handle as district supervisor of New Jersey, effective May 8, Edgar G. Rex, Assistant Secretary of Agriculture of New Jersey, was temporarily designated as acting district supervisor.

Heavy shipments of vegetable plants from the Del-Mar-Va Peninsula required the services of a temporarily employed inspector. Several million onion, tomato, cabbage, and sweetpotato plants were inspected and certified for movement to nonregulated territory.

Removal of the western Pennsylvania Japanese beetle quarantine suboffice from the Post Office Building in Greensburg to the second floor of the Allegheny Post Office Building, West Ohio Street, North Side, Pittsburgh, was accomplished on May 15. The telephone number of the new office is Cedar 1133.

Two Pennsylvania seed houses, one in Bucks County and the other in Philadelphia, were busy during May supplying welfare seed orders. A greenhouse in Bucks County also shipped vegetable plants to welfare agencies.

Corn Borer Certification

Early frosts last fall and last summer's drought conditions in the Middle West combined to increase this spring's shipments of dahlia tubers and plants from Long Island. Many of these shipments are for the replacement of parent stock lost during the two natural reverses of the 1933 growing season. Considerable activity is evidenced in the movement of dahlia plants, attributable to the shortage of tubers and the preference shown by other buyers for the more expensive varieties obtainable only in plant stock. Dahlia growing is reported as a fast growing side line for residents of Long Island. Backyard gardeners in many instances have tided themselves over the depression by specializing in the propagation of the more expensive varieties of dahlias. This type of business requires the inspector covering the Long Island district to make many inspections after hours and on Saturday afternoons, as New York City commuters are at their dahlia plots only in the evening and on Saturdays and Sundays. In the area just north of New York City there are a number of growers producing high-priced stock, as their stock is limited in quantity and of newly created varieties.

Growers shipping plant material subject to either State or Federal inspection and certification under the State corn borer quarantine orders and regulations have in some instances expressed a decided preference for the Federal inspection service. As stated by one grower, Federal certification apparently carries with it a more official recognition of the measures growers take to rid their stock of infestation, and also elicits more interest on the part of the consignee receiving the material. Expeditious service rendered by Federal corn borer inspectors is also cited as facilitating the movement of orders requiring certification.

Surveys by State inspectors to determine compliance with the Connecticut corn borer clean-up law were about completed by the end of May. At the end of the month a number of court cases were pending against corn growers who failed to comply with the law after having been instructed to destroy the standing stubble in their fields.

Gypsy Moth and Brown-Tail Moth Quarantine Enforcement

Feldspar, as certified under the gypsy moth quarantine from the mines in Connecticut, has a variety of valuable uses. The Connecticut feldspar is mined in three forms. Crystal spar, which varies in color from cream to white, is used in the manufacture of pottery and soap, only the best grades being used in soap production. Glaze spar, a form of crystal spar, when mixed with various other ingredients, such as borax, magnesium, and lead, forms the clear white glaze that may be observed on most tableware and tile. Graphic spar, which is impregnated with quartz and ranges in color from a pure white to pink, is a poorer grade than the crystal spar. This is mixed with China clay or kaolin to make the body of the pottery. A third form of feldspar obtained in the Connecticut mines is albite, or soda spar. This ranges from a pure white to a pale greenish, almost transparent crystal, called Clevelandite. The latter material is not mined in commercial quantities but the pieces are valuable principally as specimens. In the manufacture of Chinaware or porcelain, biscuitware first is obtained by firing the clay in a kiln. This then is dipped in a solution of feldspar combined with the ingredients mentioned above, made according to the individual potter's formula. The dipped ware is again fired to obtain the clear, transparent glazed surface. Hard feldspars require a much higher firing point than the softer spars, since the latter contains both lime and soda. Feldspar is mined by both open pit and tunneling, according to the overburden. The material is cut out by drilling with jack-hammers.

One quarry at East Weymouth, Mass., which has not shipped for several months, is now cutting stone for two church construction projects, one in Hudson Falls, N.Y., and the other in New Britain, Conn. Granite for the Hudson Falls church is being shipped in box cars, each car containing its full capacity of 50 tons. The stone is cut into blocks usually weighing from 10 to 100 pounds, with some larger stones weighing nearly 200 pounds. These blocks are all loaded by hand from truck to car, a full car containing approximately 1,000 running feet of granite. Granite for the church in New Britain is being transported in motor trucks to the building site, a distance of approximately 140 miles. This is the first time granite from this quarry has been moved via truck in such large quantities. During May, 20 truckloads of 200 running feet each, or the equivalent of two carloads, were trucked to New Britain.

Gypsy moth egg clusters were hatching by the end of May. Inspectors therefore exercised extreme care in inspecting products, since a minute examination is necessary to determine the presence of young gypsy moth larvae. In eastern Massachusetts it was necessary to refuse inspection of a shipment of collected blueberry bushes since it contained larvae of the moth. At a nursery in the generally infested section of western Massachusetts an inspector observed several hatched egg clusters. No larvae could be found on balled and burlapped spruce and balsam trees offered for inspection prior to sale at the nursery's roadside stand. Nevertheless the trees were sprayed with arsenate of lead under the supervision of the inspector.

Gypsy moth line stations, which began operation April 14 on the border of the lightly infested zone in the vicinity of Waterbury and New Haven, Conn., were discontinued on May 26. The principal exit highways from the infested areas were guarded during the peak movement of nursery stock this spring. With the passing of Memorial Day and the starting of new growth on both evergreen and deciduous stock, the movement of nursery stock was largely discontinued late in May. This road inspection work involved the operation of two permanent stations with two mobile patrols covering a total of 11 highways along the southwestern boundary of the infested areas.

Continued cool weather in New England prolonged the nursery stock shipping season, which usually ends about May 1. Considerable stock was still being shipped under gypsy moth certification at the end of the month. Most of this activity was concentrated in small nurseries that ship by parcel post or express. Inspections at the larger nurseries were on the decline, since most wholesale orders had been shipped. At the end of the month the large establishments were catering to the retail trade and landscape gardeners who truck their purchases to destination. Shipments of dormant stock from cold storage were about concluded.

Marble shipments from the Rutland, Vt., district were very heavy during May, probably exceeding the May shipments of any of the past 4 years. There has been more lumber cut in this district and shipped by truck than for the last 2 years. Pulpwood is also moving at a rapid rate. Usually the pulpwood is cut, peeled, and piled. After drying it is then trucked to destination. At the present time the pulpwood is being peeled soon after cutting and trucked to destination as fast as it is peeled.

Forest products inspected were of the usual types of materials, with the exception of cut lilacs shipped for Memorial Day sale. It is customary for the lilac buyers to start in southern New England and work north with their purchases. Usually the blooms are placed in large packing cases and shipped with cracked ice. One large florist concern in Newport, R.I., makes a regular business of shipping these blooms each year. This establishment owns a large hedge of lilacs approximately 200 feet in length.

According to a published announcement by H. L. Bailey, department entomologist, Vermont Department of Agriculture, no infestations of the brown-tail moth have been reported in his State this spring. Large areas of Vermont which were heavily infested by the brown-tail moth caterpillar last spring show practically no infestation this year, due possibly to winter-killing of the larvae in the winter webs. Plainfield, East Montpelier, and vicinity are cited as affording striking instances of this reduced infestation.

Much of the privet hedge in Newport County, R.I., that was considered dead from winter-killing is making new growth from the roots. It now appears probable that little loss of privet will occur from the past winter, although practically all of the old established hedges have been cut to within a few inches of the ground.

An estimated gypsy moth egg hatch of 70 percent is reported by Dr. H. B. Peirson, State Entomologist of Maine, in a recent release surveying the insect pest conditions in his State this spring. Overwintering caterpillars of the brown-tail moth are reported as "almost completely killed."

With the approach of Memorial Day increased activity was noted in the shipment of monumental granite consigned to various cemeteries located outside the gypsy moth infested zone. There was a decided decrease in the number of shipments of finished stone immediately after Memorial Day.

One quarry shipping certified granite from Quincy, Mass., has received an order for 20 carloads of seam-faced stone. Granite of this type is used principally in church construction because of its color variations in deep rusts and browns. These colors apparently are due to water seepage through rock veins.

Castine, Maine, is reported as heavily infested with the brown-tail moth. Over 300,000 winter webs were cut during the past winter before funds were exhausted. Despite these control activities the moth is proving quite destructive in the northern section of the town.

Late in the month a carload of freshly mined garnet rock was inspected and certified in central New Hampshire for shipment to an automobile manufacturer in Detroit. This was the first shipment of garnet from this locality during the past 2 years.

In Quincy, Mass., a special appropriation of $3,000 was necessary to provide for the removal of dead hedges. These winter-killed hedges had been cut to within a few inches of the ground, and the dead wood placed in enormous piles along the curbs for collection.

MEXICAN FRUIT FLY

There was a decided decrease in the number of Anastrepha taken in the 5,200 traps in operation in May. Only 5 A. ludens, 23 A. pallens, and 1 T. curvicauda were captured. There was a complete absence of the various other species of Anastrepha that have been taken frequently during the past several months. The decline in the number of Anastrepha taken can be attributed to the lack of food material in the groves following the close of the harvesting period on April 5, to the mortality occasioned by the hot dry weather of the past 2 months, and to some extent to the extensive use of sulphur by the growers throughout the Valley in controlling the rust mite. That there has been no wholesale migration of the various species from the groves to the native brush is indicated by the fact that approximately 500 traps located in the brush gave negative results throughout the month.

Considerable difficulty was experienced by the malt used as the bait in the traps passing through the alcoholic fermentation into a vinegar fermentation too rapidly. All traps and containers used in preparing and transporting the bait were disinfected with sodium hyperchloride which slowed down the vinegar fermentation to some extent. Brown sugar as a bait was much slower to turn to vinegar and also left the traps in a much cleaner condition.

Inspectors assigned to examinations in the brushlands continued to send in numerous collections of native fruits and berries for pupation tray studies. Some 348 collections, comprising about 30 species of native fruits were submitted. A few adult Zonosemas were reared from collections of Solanum elaeagnifolium; nothing emerged from other collections.

Notice was received during the latter part of the month that the 3,600 additional glass traps ordered some time ago had been shipped. A new halter for hanging these traps in the trees was devised and a machine for twisting the wire on the neck of the trap was designed and constructed. A die for stamping out the 4-inch circular hardware cloth screens was also designed and constructed. With the new fittings the time required to work the traps will be materially reduced.

Two adult ludens were trapped in Matamoros. The traps scattered in the ranches along the Mexican side of the Rio Grande and in Reynosa gave negative results. Next to the largest number of larvae of ludens ever taken from imported fruit in any one month were recovered in May when 11,011 larvae were taken from mangoes and oranges. This number was exceeded in June 1932 when 13,826 larvae were taken. Undoubtedly considerable numbers of infested fruit were sold to the consumers before evidences of infestation became apparent. It is expected, therefore, that the number of adult flies trapped in Matamoros will increase considerably during the next few weeks. There seems to be no way at the present time by which the importation of this fruit can be prohibited. Upon the completion of the reorganization of the Mexican Department of Agriculture, it is hoped that some action can be taken.

The spraying operations caught up with the infestations and it was possible to discontinue the use of one of the power rigs on the 15th. The other was used to spray areas where numerous flies had been taken during such time as it was not engaged in spraying recently infested groves. The weather remained hot and dry, making ideal conditions for the spray work. The irrigation of groves interferred to some extent and the prevalency of irrigation borders in the groves made the going rough. However, this was offset to some extent by an adequacy of water in practically all the canals. A total of 32,542 trees on 69 properties were sprayed. A few slight changes were made in the method of applying the spray, following a number of glass plate tests of the thoroughness of the application. It was found that the foliage in the center of densely foliated trees was being well speckled with the spray.

New equipment received during the month included five new Ford V-8 sedan delivery cars, a hydraulic lift for the garage, and a supply of parts used in repairing automotive equipment.

A Board of Survey was appointed to dispose of four used 1927 model Chevrolet trucks and a number of used tires and tubes. Exceptionally good prices were received for this equipment.

The field work of correcting the census notes was practically completed by the end of the month. Indications pointed to a rather heavy loss of trees in the eastern end of the Valley as a result of the hurricane of September 4. New plantings were scarce and the completed figures will probably show the smallest yearly planting of trees since these records have been kept.

The "June Drop" of citrus fruit which occurred in May this year was reported as being extraordinarily heavy. Many growers who had figured on a fair crop of fruit reported that practically all of the fruit had dropped. Blooms were noted throughout the Valley and indications point to one of the heaviest October blooms the Valley has ever had.

PINK BOLLWORM

Since the sterilization of planting seed has been completed in the Western Extension of Texas and New Mexico, the present activity has consisted in checking the records to account for the seed which was not sterilized. This work has been progressing very satisfactorily, with about one-fifth of the farmers having been accounted for. As previously stated, it is being found that considerable quantities of seed returned to the farms were later sold to various gins and oil mills, and other farmers used the seed for feed. In quite a few instances our records showed the seed under the owner's name, whereas it was brought to the machine and sterilized under the tenant's name. The work thus far indicates that when all of the records are fairly checked practically all of the seed will have been accounted for.

In connection with the sterilization campaign, our inspectors have been on the alert to learn of any complaints of failure of seed to germinate which might be attributed to sterilization. It is very gratifying to report that few such complaints were made and whenever they were an inspector called upon the farmers concerned. After a thorough discussion of the situation, in practically every instance the farmers admitted that weather conditions were responsible, and they seemed to appreciate the fact that they were visited to secure definite information about their trouble. In one particular instance a farmer secured a good stand from the first acreage planted, but other plantings did not germinate very well and he thought it might be due to sterilization. He secured outside seed for replanting, but as he failed to get enough he used sterilized seed for the remaining acreage and secured a perfect stand. Another farmer bought high-grade seed from outside sources to plant his entire acreage, but he also ran short and used some seed he had sterilized for feeding purposes. The outside seed germinated very poorly, while the sterilized seed came up to a perfect stand. These and other similar instances have been very beneficial in demonstrating to the farmers that sterilization is not harmful to planting seed.

Cool weather the first part of the month retarded the trap-plot cotton in the Big Bend of Texas somewhat, but later conditions became more favorable and the cotton made excellent progress. The first blooms in the Presidio section were found on May 23, and by the end of the month 533 blooms had been inspected with negative results. The first pink bollworms in blooms were found on June 2, and by the 7th, the date of the last report received, worms had been found in 13 of the 25 plots. Last season, through June 9, the trap plots had produced only 30 worms; however, it should be recalled that they are twice as large this season, so there is naturally more material to attract the moths. The two half-acre plots planted in the field in the Castolon section produced the first blooms on May 25, and by the end of the month 1,888 blooms had been inspected, resulting in the finding of 18 specimens. The plot of stub cotton in the Presidio section, containing about 60 plants, began blooming on May 15; however, there were not sufficient blooms to warrant daily inspections until May 23. The first worms in this plot were collected on May 28, and by the end of the month 324 blooms had been inspected and 29 worms taken. It is of interest to know that several trap plots on this same farm gave negative results, thus indicating that the stub cotton seems to be more attractive to moths than the other cotton. It will be noted that three different types of cotton are being used for the trap plots--the hotbed and stub cotton in the Presidio section, and the field planted cotton in the Castolon section. At the end of the season we will thus be in a position to compare the results of each type and decide which is best suited for our purpose. As mentioned in the last News Letter, a prominent farmer in that section is of the opinion that we could utilize stub cotton for trapping needs.

It will be recalled that two small plots of cotton were planted in the non-cotton zone in southern Georgia. The latest reports indicate that this cotton has not yet begun to square; in fact, very little cotton in that section has produced any squares at the present time. Cotton in that particular section is in very poor shape now due to too much rainfall.

The eradication of wild cotton in southern Florida continued to make good progress. However, by the end of the month conditions were becoming very unfavorable, so that this work will be discontinued very shortly. During the month the first clean-up was completed of part of the west coast lying just south of the Tamiami Trail. No work had previously been done in this section with the exception of removing plants located along the roads and trails. A second recleaning this season is being made along the west coast from Naples northward, and was just about completed at the close of the month. This was considered advisable to prevent any of the seedling or sprout plants from reaching the fruiting stage before another season and thus enabling the wild cotton to continue reproducing itself. By the end of the month the recleaning of the mainland keys from Key Largo southward to Lower Matecumbe had been completed; also a first clean-up was just about finished on Long Key. The work on Long Key was not begun until this time because of the fact that the highway does not cross it and it was considered advisable to first concentrate the work on the keys over which the highway passed. During May 895 acres were cleaned for the first time, from which 109,330 mature and 36,451 seedling plants were removed. In addition, 483 acres were recleaned, from which 2,069 mature, 156,939 seedling, and 7,813 sprout plants were removed. This is a considerable number of mature plants to find during a recleaning. The great majority of them occurred along the west coast in Charlotte County. They were missed during the previous clean-up because of the fact that the plants had shed their leaves, and this made it extremely difficult to locate them.

In previous News Letters mention has been made of eradicating some of the wild cotton plants by poisoning them. As a result of considerable work along this line it has been found much more economical to pull or dig out plants which can be easily handled that way and use the chemical treatment only on such plants as are imbedded in cracks of rocks and in similar places where it is impossible to dig them, and this system will be used hereafter. After testing various methods of applying the poison, the one which seems to be most effective is to cut the plant off, leaving a stump of from 3 to 6 inches. The stump is then lacerated and about half a pint of sodium-arsenite solution poured upon it. The strength of the solution found to be most effective is 2 pounds of dry sodium arsenite to a gallon of water. Excellent results are now being obtained by following the above procedure.

The inspection of laboratory material has been continued throughout the month at San Antonio and at the various field stations. As mentioned in the last News Letter, a few specimens have been found in some of the older regulated areas in West Texas and New Mexico. No additional specimens were found at the San Antonio laboratory, and the results of laboratory inspection have been negative for the entire season at the field stations located in Arizona, Florida, and Georgia.

PREVENTING SPREAD OF MOTHS

The application of poison-spray solution is, of course, a very essential phase of gypsy moth control work, but is confined to a very short period of time--approximately 30 days. The date of starting this work is dependent primarily on the development of foliage, which varies somewhat from year to year. In order to perform spraying satisfactorily, it is necessary to wait until foliage develops on the trees to a sufficient extent to hold the spray well and also until there can be little chance that the leaves will increase in size to any great extent after the spray is applied. As the foliage develops it may reach a size to hold spray well but may not be anywhere near full grown. If the poison is applied at that particular time, the increase in size of the leaves will form considerable unsprayed leaf surface which can serve as food for gypsy moth caterpillars and from which they will not obtain poison to kill them. As it is particularly desirable, when spraying for extermination, to have all of the possible food treated with poison, it is very essential that leaves be practically full grown before the spray is applied to them. In general, spraying can be started about June 1, and usually terminates not later than July 4 as, at that time, gypsy moth caterpillars have usually ceased to feed. Because of the limited time available to apply the spray over large wooded areas, frequently mountainous and otherwise almost inaccessible, preparations for this work must be made and the supplies and equipment delivered in the field well in advance of the day when it is expected that spraying operations may be started. Centrally located storage points, distributed throughout the area in which this work is planned, are therefore selected. It is then necessary to keep a fleet of supply trucks in constant operation during the month of May, distributing such items as arsenate of lead, fish oil, spray hose, motor oils, and numerous other items of a less bulky nature which have been carefully estimated by the district supervisors in charge.

Spraying machines, fully equipped with necessary tools, hose, spare motor oil, and numerous accessories required for this particular type of work, must be in the field ready to start operating the day it is determined that the foliage is sufficiently grown to hold the spray. It is the usual practice, therefore, to distribute these machines at points where work is to be first taken up 5 to 10 days in advance of the estimated starting date.

Temporary barbed wire fences are often erected to exclude livestock from wooded areas scheduled for spraying.

Materials for fence building must, of course, be in the field so that fences may be erected before the spraying work is started in that particular area. This season nearly 28 miles of 3- or 4-strand barbed wire fence have been erected around forest areas selected for spraying. In addition about 7 miles of old fences which were on properties have been repaired so that they serve as satisfactory barriers to the encroachment of cattle. In the erection of the new fencing and the repairing of the old several thousand pounds of staples were used and, in addition, a considerable number of wire stretchers, post mauls, crowbars, staple pullers, hammers, etc., had to be issued to the crews erecting and repairing fences so that the work could proceed as rapidly as possible. The barbed wire used in erecting fences remains the property of the Federal Government. As the adhesive used with the arsenate of lead in connection with gypsy moth spraying causes the poison to remain on the foliage for long periods, the fences are not dismantled until there is no further danger of poisoning to livestock. In some cases it is necessary to leave the fences up until the foliage is shed from the trees in the fall.

During May a considerable amount of fence was erected and removed, and other fences which were in poor condition, although standing, were repaired. The fences erected will separate certain areas selected for spraying from area to be used as pasture land in order to prevent cattle from getting into sprayed area. The fences which are repaired are those that have been erected by the owners of the property as a barrier between various properties, or separating land used as pasture from that used for other purposes. These fences are, in many cases, in a run-down condition, but are satisfactory for ordinary purposes as far as the owner of the land is concerned. They are, however, either weakened or the wire has deteriorated to such an extent that there might be a possibility of cattle breaking through into the sprayed area; and because of the danger of cattle grazing in an area where arsenate of lead has been used, it is necessary that these fences be put in good condition. Those fences which have been removed were built by this project to enclose areas sprayed last year but, because these areas will not be sprayed this year, the Federal-owned wire has been removed and will be used elsewhere. Prior to the erection of these fences permission, in writing, covering the erection and removal of all Government-owned fence, is secured from the owners of the properties where spraying is to be done. Posts necessary in the construction of these fences are furnished by the property owners from woodland on the property. Wherever possible, these posts are made from dead trees the condition of which is still sound enough to make good, strong posts.

During the first 3 weeks of this period the number of men used on gypsy moth work in the C.C.C. camps increased over the number of men available in April. There was a small dropping off in the number of men during the last week of May as, in some cases, the crews were decreased, in order to use them on other summer activities.

Ten Chevrolet box-bodied trucks have been transferred to the Forest Service of the United States Department of Agriculture. These are being used by the gypsy moth foremen in the following camps: One at Bellows Falls, Vt.; one in each of the four camps in Massachusetts, and one in each of the five camps in Connecticut. Arrangements are under way for transferring another truck to the Forest Service for the use of the gypsy moth foreman in a fifth camp in Massachusetts. Gypsy moth work is being done from five other camps in Massachusetts, which are under the direction of the Department of the Interior, and it is hoped that arrangements may be made for the transfer of five trucks to this department for the use of the gypsy moth foremen in these five camps in this State. There is a definite shortage of efficient transportation in the camps, and the transfers of trucks that have already been made have not only helped in speeding up the gypsy moth work in the camps, but have made better cooperative possibilities in these camps with the State officials.

The State officials in Massachusetts and Connecticut in charge of camp work have been interviewed during the month to discuss work for the summer months, and an agreement has been reached to decrease the personnel in each of the camps for this period. In Connecticut the services of 7 foremen for gypsy moth work will be dispensed with so that in two camps there will be two foremen in each of them, and in five camps, a single foreman. Each of these foremen will be supplied with 5 men. In Vermont a crew will be decreased to about 20 men at the camp at Bellows Falls.

Burlap has been purchased by the proper State officials and has been distributed to the camps. This will be used for burlapping trees at the sites of infestations which have been discovered during the winter. These burlaps will be patrolled so that the caterpillars congregating beneath them will be crushed. Scouting of woodland in open country during summer months will be done in a limited way in places where it is impossible to place burlaps on the trees and attend to them regularly. This will aid considerably in decreasing the intensity of infestation at these colonies.

Scouting work continued throughout May. During the month all the forces engaged in gypsy moth control work scouted over 136,000 acres of woodland and along 849 miles of roadsides. In addition, about 445,000 scattered trees in more open country were examined. Gypsy moth egg clusters found during the course of this scouting were destroyed.

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